Additionally, claim 1 has been amended to specify that the oriented strand board contains from about 0.5 wt% to about 2.5 wt% wax. Support for this amendment may be found on page 5, lines 23-26. Present claims 21-23 have been added. Support for these new claims may be found, at least, in the claims as originally filed.

No new matter has been added.

The Restriction Requirement

In the Office Action of October 2, 2002, the Examiner has required restriction between the claims of:

Group I (claims 1-12), which is drawn to a wood composite, allegedly classified in Class 525, Subclass 410; and

Group II (claims 13-20), which is drawn to a method for making a strand board composite, allegedly classified in Class 427, Subclass 222.

The Examiner asserts that the inventions of the two separate groups are distinct because the wood composite of Group I can be made by another process than that process mentioned in Group II. Specifically, the Examiner asserts that the wood composite can be made by combining components without crosslinking them or by coating wood strands or flakes without a wax substance. The Examiner concludes that because these inventions are distinct for the aforementioned reasons, restriction for Examination purposes is proper.

Applicants respectfully disagree with the Examiner's analysis and traverse this restriction requirement as follows.

The claims of the designated groups have not acquired a separate status in the art, notwithstanding possible different art classifications that may artificially be assigned. Art very relevant to the patentability of the Group I claims may be found in the art class assigned to the process claims of Group II. Similarly, art very relevant to the patentability of the Group II claims may be found in the art class assigned to the wood composite claims of Group I. Accordingly, a patentability search for the claims in all groups would primarily involve searching those classes/subclasses relating to wood composite materials and methods for making such materials. Such searching would be duplicated if the two identified claim groups were to be ultimately prosecuted in separate applications.

In short, the classifications cited to support restriction are merely for cataloging purposes and are not conclusive of the propriety of restriction. It is submitted that the claims of

the two groups designated by the Examiner are closely interrelated and in order to preserve unity of invention, both groups should be prosecuted in the same application.

Indeed, the very possible likelihood that art relevant to each of these groups will be found in their overlapping classifications, means that it is practicable for the Examiner to preserve the unity of invention of this application and examine all of the patent claims in a single examination. In fact, the Examiner is required by M.P.E.P. §803 to make a *prima facie* case showing that a search and examination of the entire application will result in a serious burden to the Examiner. The Examiner has not made any such minimal showing. Rather, in the Office Action of Paper No. 3 the Examiner's comments relate solely to explaining that the inventions of Groups I-II are distinct from one another. The Examiner then concludes that because Groups I-II are purportedly distinct from each other they have acquired a separate status in the art and restriction for examination purposes is proper. However, the Examiner provides no explanation as to why a search and examination of the entire application would be a serious burden, as the Examiner is in fact required to do.

Accordingly because the Examiner has not made a *prima facie* showing that a search and examination of the entire application would be a serious burden, the restriction requirement is inappropriate and should be withdrawn.

Provisional Election

In the event that the Examiner maintains the Restriction Requirement, Applicants hereby confirm the provisional election of claims 1-12 (Group I), with traverse, for prosecution on the merits.

Response to the Office Action, On the Merits

The Examiner has rejected claims 1-11 under 35 U.S.C. §102(b) as being anticipated by Lo et al., U.S. Patent No. 5,143,989 ("Lo"). The present application relates to a fire retardant wood composite material containing an organophosphorus ester compound and a polymer binder resin. This fire retardant wood composite material provides improved fire resistance and durability when compared to prior art materials, and additionally prevents the undesirable emission of environmentally unfriendly fire retardant additives.

Lo fairly discloses a fire retardant for use with materials that are able to absorb the fire retardant. These materials may be aqueous or nonaqueous. (Col. 2, lines 18-20). Suitable such materials are wood, paper, and flammable fabrics. (Col. 2, lines 21-23). Fabrics

include cotton, rayon, nylon, and polyesters, while treatable wood materials include compressed wood fibers such as lingo-cellulosic fibers, particle board, plywood, and natural wood. (Col. 2, lines 26-30). The fire retardant material is preferably produced by a condensation reaction between a phenol-formaldehyde resin and an organophosphorous polyol, such as those prepared under the FYROL trademark. (Col. 1, lines 42-48; Col. 2, line 39 – Col. 3, line 32). Preferably, in Lo the phenolic resin is modified by the introduction of a phosphonate moiety contributed by an organophosphous aminoalkyl phosphonate. (Col. 2, lines 63-69).

Out of the group of claims rejected, only claims 1 and new claim 21 are independent.

Claim 1 (as amended) recites:

> A wood composite material that is in the form of an oriented strand board comprising: (i) an organophosphorus ester compound, (ii) a polymer binder resin, and (iii) about 0.5 to about 2.5 wt % wax, wherein said composite material achieves a limiting oxygen index in the range of about 26 to about 40, an average thickness swelling in the range of about 7% to about 15 %, and said composite material has a fire spread rating of greater than about 25 and less than about 75.

New claim 21 recites:

> A wood composite material comprising: (i) an organophosphorus ester compound, and (ii) an isocyanate polymer binder resin.

Lo does not disclose a wood composite material having a limiting oxygen index in the range of about 26 to about 40, an average thickness swelling in the range of about 7% to about 15%, and a fire spread rating of greater than about 25 and less than about 75. Nor does Lo disclose a wood composite material comprising about 0.5 wt% to about 2.5 wt% wax. Nor does Lo teach the type of wood composite material that is an oriented strand board ("OSB"). Additionally, Lo fails to disclose the use of an isocyanate binder as recited in claim 21. Because an anticipation rejection under 35 U.S.C. §102 requires that all of the elements of a claim must be taught or suggested by a prior art reference, (M.P.E.P. §706.02), the instant claims are allowable.

In the Office Action of Paper No. 3, the Examiner concedes that Lo fails to disclose a wood composite material having a limiting oxygen index in the range of about 26 to about 40, an average thickness swelling in the range of about 7% to about 15 %, and a fire spread rating of greater than about 25 and less than about 75, (Paper No. 3, ¶ 9). Nonetheless the

Examiner asserts that the wood composites disclosed in Lo would inherently have these same performance properties.

Applicants respectfully disagree with the Examiner's analysis because the Examiner has not made an adequate showing to support an assertion of inherency. In order to support an assertion that an element or feature is inherently present in the prior art, the Examiner must show by objective evidence or cogent technical reasoning that the missing element necessarily flows from the teachings of the prior art. The fact that an element may be present in the prior art is not sufficient to establish inherency. (M.P.E.P. §2112).

The Examiner has not met this burden. The only showing offered by the Examiner in support of the inherency suggestion is the Examiner's assertion that, "because Lo uses the same materials as those found in the applicant's examples...the wood composites of Lo's invention would inherently possess the applicant's claimed properties." Applicants respectfully assert that this showing is not adequate to support the Examiner's inherency assertion. Specifically, Applicants maintain that the Examiner is incorrect to argue that the wood composites set forth in the present claims are not the same as the wood composite materials set forth in Lo. In the present case, the wood composite materials are a specific species of wood composite, *viz.*, oriented strand board ("OSB"). This type of material is manufactured according to the process set forth in the application at page 4, lines 3-24. By contrast, the material described in Lo is simply an undifferentiated mat made from compressed wood fibers such as hardboard, or fiberboard. (Col. 3, lines 34-60, see also examples 1-14). Important performance properties, such as limiting oxygen index, average thickness swelling, and fire spread rating are all strongly dependent on the specific construction of the wood composite material and cannot be accurately compared across different types of the wood composite materials. Thus, the Examiner has failed to make sufficiently specific findings to support an assertion of inherency. Accordingly, Applicants respectfully maintain that the limiting oxygen index, average thickness swelling, and fire spread rating elements of the OSB material described in claim 1 are not disclosed by Lo, either explicitly or under a theory of inherency.

Additionally, Lo does not teach the type of wood composite material that is an oriented strand board ("OSB"). Lo does teach specific types of wood composite materials such as hardboard and fiberboard. (Col. 3, lines 42-48). However, Lo has no disclosure relating to oriented strand board.

With regards to the element of claim 1 reciting that the OSB comprises from about 0.5 wt% to about 2.5 wt% of wax, Lo is completely silent on this element, and has no teachings relevant to the wax content of a wood composite material.

With reference to new claim 21, this claim recites a fire retardant wood composite material containing an organophosphorus ester compound and a isocyanate binder resin. The Lo reference does briefly mention isocyantes:

> Albright & Wilson's Vircol 82 flame retardant is another phosphorus-based polyol which is known to react readily with isocyanates to produce urethane prepolymers. This polyol, which contains 11.3% phosphorus and hydrolyzes slowly in water according to Albright & Wilson, also reacts with a fusible phenolic resin to produce a flame retardant resin from which only a small percentage of the phosphorus was lost by leaching when a molded hardboard roofing shingle containing the resin was soaked in water for 72 hours. (Col. 8, lines 15-24, emphasis added).

Thus, while Lo does briefly mention isocyantes, Lo mentions them only in passing, Lo mentions them only for the purpose of fully describing a specific organophosphorus polyol (Albright's "Vircol 82"). Lo has no teachings asserting that Lo may be used as a polymer binder in a wood composite material.

For the reasons set forth above, Lo fails to teach or suggest all of the elements of the present claims. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

Rejections Under 35 U.S.C. §103

The Examiner has rejected claims 12 under 35 U.S.C. §103 as being obvious in view of the combination of Lo and Newman et al., U.S. Patent No. 4,828,643.

This rejection is now moot because claim 12 has been cancelled.

Respectfully submitted,

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Marked-Up Version Of Claim 1

1. (Amended) A wood composite material that is an oriented strand board comprising:

(i) an organophosphorus ester compound, [and] (ii) a polymer binder resin[.], and (iii) about 0.5 wt% to about 2.5 wt% wax, wherein said composite material achieves a limiting oxygen index in the range of about 26 to about 40, an average thickness swelling in the range of about 7% to about 15 %, and said composite material has a fire spread rating of greater than about 25 and less than about 75.